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A Sample Effective Project Training with Implementation Program for Outcome-based Education System

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***Abstract*- This is an effective training program to know the consideration and practical application based on main subjects of curriculum, and to know how to approach fully documented project with theory and application, to get practical based knowledge for the preparation of drawing, detail scheduling and estimation, scale modeling, report writing and presentation. It will be a quick design and analysis aid for the implementation of the construction of a low-rise residential building. This training program is meant for the students of A.G.T.I Diploma level. There is always a difference between the theoretical and practical work done for Civil Engineering. Thus, we learned the practical and job training by doing scale model building. This training program studied how to do project proposal and detail arrangements of civil work for a low-rise residential building.**

***Keywords*- Fully Documented Project, Practical Based Knowledge, Quick Design and Analysis Aid, Low-rise Residential Building, Project Proposal.**

I. INTRODUCTION

Today, the outcome based education system is popular and effective in various educational fields to give the best knowledge. Thus, department of technical and vocational education establish many technical institutes and technical high school to create skillful workers and technicians in our developing country. The framework of this program is based on the effective curriculums and qualified educational system.

The chance or ease of this training is suitable for the students or trainees who use promptly their getting knowledge in their actual work. The main finding of this paper is to get a more comprehensive and multiple layered system for technical education. This study is tried to get the effective educational framework for the direct application in work. This will be advantageous on academic engineering education. The feedback survey is recorded from some trainees in their actual working condition after working about half of the year. This is well powerful and useful for development in academic teaching.

Thus, it is implemented by using the basic theory in curriculum and valued added knowledge of actual working condition. The training with implementation program is made to study the basic knowledge, background knowledge by doing a full scale model in Project. Then, the trainees can be studied how to approach fully documented project with theory and application. Afterwards, the trainees can be known the consideration and practical application based on main subjects in Curriculum. The implementation program is served as an invaluable tool for quick designs during pre-construction state and for preliminary scheming and member sizing. The students can be made practical basic knowledge for the preparation of Drawing, Detail Scheduling and Estimation, Scale Modeling, Report Writing and Presentation. By getting these essential practices and knowledge, the outcome of their effort in work is very effective.

II. IMPLEMENTATION PROGRAM

The case study building in Yangon is used for implementation program and the detailing data from this is used as our references. Basic Architectural Drawing, Structural Drawing by using Auto-Cad software is prepared how to see working drawing in construction stage. Basic Design Consideration and Assumption used for Low-rise Residential Buildings in Reinforced Concrete Construction are also studied with this program. Estimating for the Construction of case study building is done with Hand Calculation and Excel format. Then, Full Scale Modeling for Project is done as practice. Finally, the Project Report is prepared and produced fully.

III. PROPOSED PROJECT BUILDING

The case study building is three-storeyed reinforced concrete residential building. The selected case study building used in this training is matched with their level. It is normally low-rised building type and framing of building member is designed only for gravity load design.it is well enough for engineering diploma level. The studying theories and knowledge are used directly in this project.

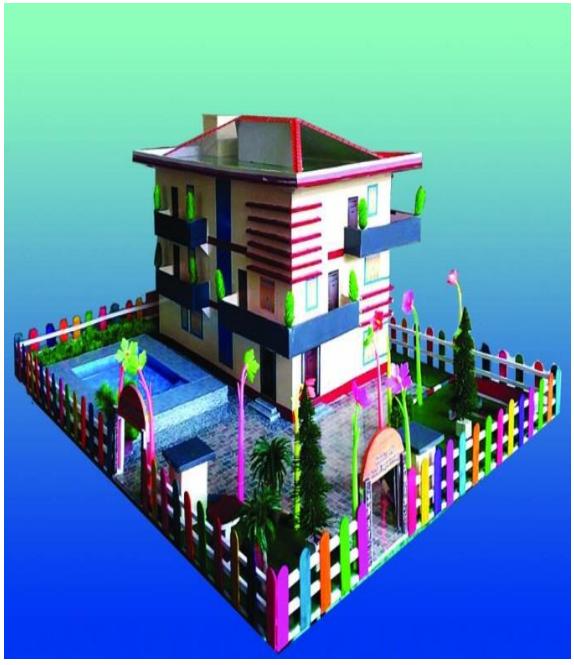

Fig 1. 3D Model of Three-Storeyed Building

IV. DETAIL PROJECT TRAINING INFOMATION

The usage of time for the Implementation of Training Program is as following table. The time is managed well by using the workshop training time and private time of trainees.

No.	Subject	Time Taken for Lecture (Hours)
1.	2D AutoCAD	30
2.	Knowledge Sharing	15
3.	Scale Modeling	30
4.	Estimates & Specification	30
5.	Documentation	15

A. Project Scope Detail

The scope of the project is well organized with main syllabus of academic subjects.

Project Scope Detail

Semester	**Basis Theory and Overall Knowledge**	**Auto-Cad**	**Estimate**
First	Introducing the project	Command	Intro
	Column Detailing	Structural Drawing for Column	
	Beam Detailing	Structural Drawing for Beam	
		Profile of Building Plan 1.Cross-section 2.Elevation	
Second	Footing Detailing	Structural Drawing for Footing	1.Detail Of Measurement, 2.Builder Estimate, 3.Bill Of Quantity, 4.Abstract Of Cost
	Slab Detailing	Structural Drawing for Slab	
Scale Model **Project Report Preparation**			

B. Basic Consideration for Design and Calculation

The key challenge of this training is that the scope of knowledge and theories is to be within the basic theories from curriculums in academic field. Therefore, the outline and guideline of training program is very critical.

By knowing the applied loads, the slabs can be designed depending upon the ratio of longer to shorter span of panel. In this project, slabs have designed as two way slabs for main floor area and one way slab for verandah. The calculations have been done for loads on beams and columns with rules of thumbs in construction field. The preliminary assumption of footing area and thickness of footing, depth of foundation was made according to the theory we learned.

Fig 2. Planning for Doing Scale Model Building

Fig 3. Making Scale Model Building

The detail estimations for the structural member sizing and scheduling was prepared. Finally, detail documentation is prepared for the implementation of construction project by using our learned theories and practical work to know the jobs done in building industry. The scale model making is very active program for all

trainees. The creation skill and practical work can also be touched well. Some extra knowledge and course for their practical experience is given by the trainer. The knowledge sharing and Auto-Cad training are also interested by students. The extra knowledge related with each subject can be made as various prototype projects.

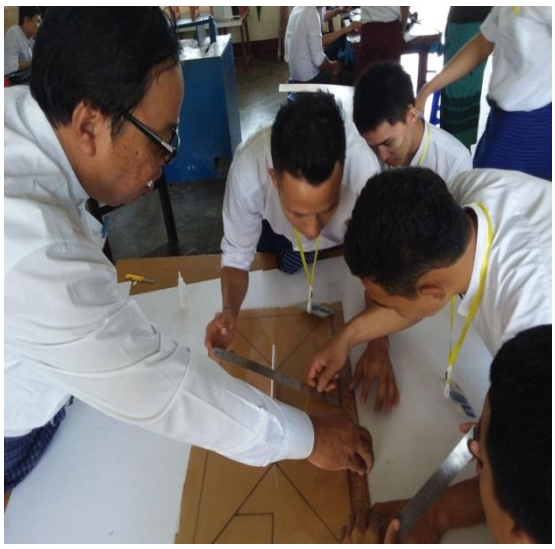

Fig 4. Making Roof of Scale Model Building

Fig 5. Decoration of Scale Model Building

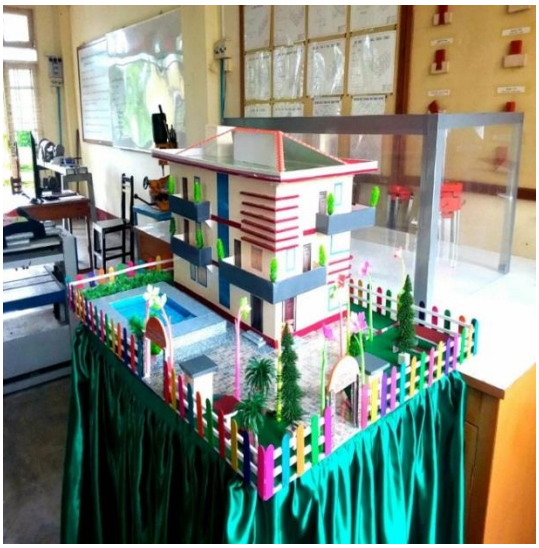

Fig 6. Fully Organized Scale Model Building

Fig 4. Group Photo of Trainees with Scale Model building

V. CONCLUSION

The basic theories are more critical for next level creation. The range and limit of acceptance level is also depended on the individual interest and concentration of each student. The trainers or lecturers of academic engineering may get the chance to know how the current trends and practices are available and applicable in construction industry. The boundary knowledge is considered as a basic to add more knowledge in actual field work. It can conclude that there is difference between the theoretical and practical work done. Civil engineering needs a practical practice in the field and a place to test the theorems taken in university. This training gives the opportunity to do that, which will help in the practical life to be a better engineer. The training may be an excellent method and very important to each students in the engineering and the training teaches us the important thing that the engineer must learn the regulation and work done. This will be a quick design and analysis aid for the implementation of the construction of a low-rise residential reinforced concrete building. This training learned the practical and job training by getting knowledge sharing program and by doing scale model building. The trainees studied how to do project proposal and detail arrangements of civil work for a low-rise residential building. This is a sample understanding for preparation of a construction of building although there are many other key considerations and specification in actual condition. The consideration and specification for using in this project report is only for students and beginner level in civil engineering.

The response from follow-up or feedback survey is satisfied for trainer and trainees. It is informatics for more knowledge to spread out their knowledge. This gives a mutual effective way between trainer and trainees for sharing knowledge, resources and idea. The scope and field of training can be changeable with individual skill, management, supports and time to get the best outcome in academic engineering for practical world.

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REFERENCES

Related Text books of Final Year (A.G.T.I Diploma Level)

Detail Information of Three-Storeyed Reinforced Concrete Building